Acc. Nr: AT0050504 Abstracting Service: CHEMICAL ABST. Ret. Code: UR0139

94966f **Effect of temperature, intensity of exciting light, and infrared-bias lighting on the luminescence of FK-[crystallophosphor]-luminophors.** Vorob'ev, K. I.; Gaevskii, A. S.; Korotkov, P. A.; Paidysh, A. N. (Kiev. Gos. Univ. im. Shevchenko, Kiev, USSR). *Izv. Vyssh. Ucheb. Zaved., Fiz.* 1970, 13(1), 55–9 (Russ). The luminescence spectrum of the uv-irradiated phosphor FK-4 (88% ZnS–12% CdS-Cu) at 77°K consists of bands at 21,300 (*G*-band) and 17,700 cm^{-1} (*Z*-band). The rise of temp. to 293°K caused a 20–30% or a considerable decrease of intensity of the *Z* or *G* band. At 77°K the duration of lighting of the *G*-band is $\leq 10^{-3}$ sec whereas the *Z*-emission extinguishes according a nonexponential law in >10 sec. When FK-4 was excited at a wavelength of 480–560 nm, the intensity of the *Z*-emission decreased sharply. The phosphor FK-3 (ZnS-Cu) gave bands with max. at 22,300, and 19,200 cm^{-1}. The ratio of the intensities of the bands $\alpha = I_Z/I_G$ is 2 times as great as that of FK-4. One band only, with a max. at 21,800 cm^{-1}, was observed in the phosphor FK-1 (ZnS-Ag). The shape of the band is independent of the temp., and its intensity decreases 20% in going from 77 to 293°K. The quantum yields of luminescence of the *G* and *Z* bands (B_G and B_Z) and the value α depend on the intensity of the exciting light (*L*): A decrease of a factor of 16,000 in *L* caused in FK-4 a 2 or 3 fold increase of B_Z or B_G, resp. As a consequence α changed from 2 to 12 in going from L_m to $L_m/16{,}500$. When the temp. changed from 77 to

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REEL/FRAME
19810487

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293°K the dependence of the quantum yield on L increased considerably. When L increased the quenching rate of the Z-emission in the 1st stage increased and after 7–9 sec the quenching rates became the same for various L. Equations for calcg. B_G and B_Z from the resp. L values were derived, and a good agreement with the expt. was obtained. The total quantum yield of the luminescence and α changed considerably when the ir-bias lighting of wavelength 800–2000 nm was applied. The ir-bias lighting on FK-4 caused a greater decrease of B_Z than of B_G. The B_G is changed very little in FK-3, and B_Z is decreased more than in FK-4. The intensity of luminescence decreased in FK-1 at moment of the ir-bias lighting by a factor of ~3 at 77°K and ~1.5 at 293°K. The above effects of the ir-bias lighting were attributed to the rearrangement of the vacancy sites between the Z, G, and quenching centers which caused the decrease of the intensity of luminescence and the change in the distribution of the spectral energy. This rearrangement depends on the compn. of the phosphor and on temp. E. Svatek

4/2

19810488

USSR

UDC 582.682.4-119.22:547.943:543.062

GAYEVSKIY, A. V., and LOSHKAREV, P. M., All Union Scientific Research Institute of Medicinal Plants, Moscow Region

"A Method for Quantitative Determination of Morphine in the Opium Poppy Pods"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 6, Jun 72, pp 54-60

Abstract: Most of the methods for determination of morphine in poppy seeds -- Papaver somnifer mL -- are rather lengthy and difficult, or inaccurate because of their complex composition of the alkaloids and a lack of specific reactions making an analysis possible without isolation. A new method was developed at the All Union Scientific Research Institute of Medicinal Plants. The entire content of alkaloids is extracted according to the procedure developed at Kharkov Scientific Chemical-Pharmaceutical Research Institute. Morphine is separated from the accompanying bases and deeply colored materials by thin layer chromatography on silica gel using a 30:10:1 mixture of chloroform: isopropanol: 25% ammonia solution, and determined colorimetrically after a reaction with sodium nitrite and ammonia.

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USSR UDC: 621.374.5(088.8)

GAYEVSKIY, V. B., YAKHONTOV, V. P.

"A Device for Shaping Pulses From a Sinusoidal Voltage"

USSR Author's Certificate No 268488, filed 11 Feb 69, published 18 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G248 P)

Translation: This Author's Certificate introduces a device for shaping pulses from a sinusoidal voltage. The unit contains conversion circuits and limiter amplifiers. To extend the amplitude and frequency ranges and obtain pulses with leading edges corresponding to the position of the points of the maximum and minimum of the input sinusoidal voltage which varies in amplitude and frequency, connected to the signal source are two identical circuits loaded by outputs of different polarity, each of which is comprised of a series-connected network of a transition capacitor, a limiter made up of a semiconductor diode and a grounded resistor, a differential network and an amplifier. The semiconductor diodes are connected in opposition.

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1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INTERRELATIONSHIP BETWEEN HUMORAL LIPID DISORDERS AND ECG DATA IN CORONARY ATHEROSCLEROSIS -U-
AUTHOR-(02)-FOMINA, L.G., GAYEVSKIY, YU.G.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 61-63

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, ATHEROSCLEROSIS, BLOOD CHEMISTRY, LIPID, CHOLERSEROL, LIPOPROTEIN, ELECTROCARDIOGRAPHY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0562 STEP NO--UR/0504/70/042/004/0061/0063

CIRC ACCESSION NO--AP0108777
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108777

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATHEROSCLEROSIS HAS A WAVE LIKE COURSE, THIS BEING IN CLOSE ASSOCIATION WITH THE FLUCTUATIONS IN THELIPID LEVEL, FIRST OF ALL BETA LIPOPROTEIDS AND CHOLESTEROL IN THE BLOOD SERUM. AGGREVATION OF THE CLINICAL COURSE OF ATHEROSCLEROSIS AS A RULE COINCIDING WITH A CRISIS INCREASE OF THE BLOOD LIPID LEVEL, MAINLY OF BETA LIPOPROTEIDS COINCIDES WITH WERSENING OF ECG, MANIFESTING ITSELF BY ALTERATION OF WAVE T AND INTERVAL ST. A DROP AND STABILIZATION OF THE BLOOD BETA LIPOPROTEID LEVEL IS ACCOMPANIED BY A CLINICAL REMISSION AND IMPROVEMENT OF ECG INDICES. FACILITY: GOSPITAL'NAYA TERAPEVTICHESKAYA KLINIKA CHELYABINSKOGO MEDITSINSKOGO INSTITUTA AND KABINET FUNKTSIONAL'NOY DIAGNOSTIKI MEDSANCHASTI CHELYABINSKOGO TRAKTORNOGO ZAVODA.

UNCLASSIFIED

USSR

UDC 612.14+612.824/.06:612.886

ROMANOV, V. A., and GAYEVYY, M. D., Chairs of Otorhinolaryngology and Pharmacology, Semipalatinsk Medical Institute, Semipalatinsk

"Effects of Stimulation of the Vestibular Analysor on the Cerebral Circulation Volume and the Total Arterial Pressure"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11, Nov 71, pp 3-4

Abstract: The effects of electric stimulation of the vestibular apparatus on the volume blood flow in vessels supplying the brain and also in extracranial vessels of the head were studied in experiments carried out under extreme conditions on cats anesthetized with chloral-urethan and dogs anesthetized with morphine-hexenal. Dogs exhibited an increase in the blood flow that was more pronounced in the internal than external carotid artery. Cats showed irregular blood flow changes in the internal maxillary artery, with the total arterial blood pressure dropping in the majority of experiments. The observed changes in bloodflow constituted manifestations of an active reaction of the vascular beds under study in response to stimulation of the vestibular apparatus, because they also took place in experiments in which the regional arterial pressure was stabilized. A device described earlier by Gayevyy (Fiziol. Zh. SSSR, No 7, 891, 1969) was used to stabilize the arterial pressure.

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USSR UDC 519.1

GAYFULLIN, F. SH.

"On a Covering of a Weighted Graph With a System of Neighborhoods of Its Points"

Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. Mosk. energ. in-t, 1970 g. Sekts. Avtomat., vychislit. i izmerit. tekhniki. Podsekts. Teoriya grafov (Reports of the Scientific-Technical Conference on Achievements in Scientific Research Work During 1968-1969. Moscow Power Engineering Institute, 1970. Section on Automation, Computer and Measurement Technology. Subsection on the Theory of Graphs), Moscow, 1970, pp 154-158 (from RZh-Matematika, No 10, Oct 70, Abstract No 10V243)

Translation: A variation of the method of stepwise optimization is proposed in solving the problem of the covering of a weighted graph. Evaluations characterizing the quality of the solution obtained are not given. Abstracters note: the problem presented in the paper is incorrect, since a covering is sought in which the minimum of two independent indices is realized simultaneously. R. Nigmatullin.

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Acc. Nr: AP0106264

Abstracting Service: INTERNAT. AEROSPACE ABST.

Ref. Code: 4P0120

GAYFULLIN M.V.

A70-28184 # **A device for transmitting analog signals (Ustroistvo dlia peredachi analogovykh signalov).** V. K. Arkhipov, M. V. Gaifullin, Iu. N. Kruglov, and V. G. Shatokhin. *Pribory i Tekhnika Eksperimenta*, Jan.-Feb. 1970, p. 195-197. In Russian.

Description of a device for transmitting information in analog form, using He-Ne laser radiation to attain a time resolution of 9 nsec. A detailed study is made of the transfer characteristics of an optical telemetric channel for transmitting pulsed nanosecond signals in analog form. It is shown that, if the light intensity at the modulator output at the initial operating point amounts to 12 to 17% of the maximum and the operating conditions of the photodetector are correctly chosen, a pulse with an amplitude of up to 300 V can be transmitted through the telemetric channel with minimum nonlinear distortions. It is noted that the wideband feature of the transmission line in such a system is determined mainly by the time resolution of the photomultiplier.

A.B.K.

REEL/FRAME
19881508

GAYGEROV S.S.

STUDIES IN THE FIELD OF ATMOSPHERIC PHYSICS

[Article by S. S. Gaygerov, Professor, and K. Ya. [illegible], Doctor of Phys.-Math. Sciences, Aerological Observatory, Moscow, Meteorologiya i gidrologiya, 1972, submitted 12 September 1972, pp 7-12]

This broad front of scientific research work in the field of atmospheric physics at the Union and Republic institutes is reviewed.

This year marks the 50th Anniversary of the founding of the Union of Soviet Socialist Republics. This act, which has [illegible] significance for the is connected with the enormous scope of the development of Soviet science, including research in the field of atmospheric physics. The research [illegible] has been broadly developed not only at the Main Geophysics Observatory — the oldest scientific institution of meteorological profile in pre-revolutionary Russia — but also in a number of newly created institutes (the USSR Hydrometeorological Center, the Arctic and Antarctic Scientific Research Institute, Administration of the war and postwar years, and not only in the Russian Federation [illegible] Aerological Observatory, the Institute of Experimental Meteorology, the Institute of Applied Geophysics, the Scientific Research Institute of Hydrometeorological Instruments, the Far Eastern Scientific Research Hydrometeorological Institute, the Institute of Atmospheric Physics of the USSR Academy of Sciences, but also in other union republics (the Estonian Scientific Research Institute of Meteorological Institute, the Transcaucasus Scientific Research Hydrometeorological Institute, the Central Asian Scientific Research Institute, the Kazakh Scientific Research Hydrometeorological Institute, High-Altitude Geophysical Institute, the Lithuanian Scientific Research Institute of Geophysics, Institute, and the Institutes in the Academy of Sciences). Large scientific collectives have been formed at these institutions, the efforts of which are aimed at solving the most complex problems of atmospheric physics and the problems of weather forecasting and modification of atmospheric phenomena connected with them.

Development of Natural Experimental Equipment and Techniques

The development of a theoretically new research method -- the [illegible] observation technique -- by the founder of Soviet aerology, P. A. [illegible], has had outstanding significance in the development of experimental [illegible]

VKS 50/233
2 Feb 73

GAYGEROV, S. S.

JPRS 55693

4 May 72

UDC 551.511.12

PROPOSALS FOR DESIGNING MODELS OF THE INTERNATIONAL STANDARD ATMOSPHERE

[Article by Professors S. S. Gaygerov, E. P. Zhorova, N. A. Kofanova, M. Ya. Marchuk, Candidates of Geographic Sciences Yu. F. Koshelkov, D. A. Tarasenko, Professor Ye. G. Shvidkovskiy, L. V. Shishkevich, Observatory: Moscow, Aerologicheskaya i Gidrologicheskaya, Central Aerological Observatory, Russian, No 7, 1972, submitted 6 July 1971, pp 38-43]

A study was made of the vertical profile of the mean annual temperature of the hemisphere and also models of the standard atmosphere for different latitudinal zones and possible seasonal variations. The characteristic of the data used to construct the models of the standard atmosphere is presented.

Introduction

The present proposals with respect to expansion of the international standard atmosphere are presented in the procedures for execution of the resolutions of the meeting of the Working Group of the ISO [International Standardization Organization] TK-20/RG-6 26-29 May 1969. The working group adopted the resolution to charge the USA (A. E. Cole) and the USSR (Ye. G. Shvidkovskiy) with preparing the design for models of the international standard atmosphere for altitudes of 20-60 km (the mean distributions and the models reflecting the latitudinal and seasonal variations). In the resolution there is a recommendation regarding the necessity of selecting the temperature profile closest to the mean annual profile with respect to the northern hemisphere for the mean model. At the meeting of the working group, it was recognized as desirable to expand the standard atmosphere to 80 km, considering the data in the 60-80 km layer as a supplement to the basic profile.

The given proposals were presented by the Soviet Union for examination by the Sixth Working Group of the Twentieth Technical Commission of the International Standardization Organization (150/TC/WG - 6) -- Standard Atmosphere -- a meeting of which was held in France (Pocurbevoir) in February 1970.

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--VERTICAL DISTRIBUTION OF THE MAIN METEOROLOGICAL PARAMETERS AND LARGE SCALE PROCESSES IN THE STRATOSPHERE AND MESOSPHERE -U-

AUTHOR-(05)-GAYGEROV, S.S., ZAYCHIKOV, B.P., KALIKHMAN, M.YA., SEDOV, V.YE., TARASENKO, D.A.

COUNTRY OF INFO--USSR

SOURCE--COSPAR, PLENARY MEETING, 13TH, LENINGRAD, USSR, MAY 20-29, 1970, PAPER. 42P

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--STRATOSPHERE, MESOSPHERE, VERTICAL PROFILE, TEMPERATURE, ATMOSPHERIC CIRCULATION, METEOROLOGIC ROCKET, OROGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0005 STEP NO--UR/0000/70/000/000/0042/0042

CIRC ACCESSION NO--AT0125845

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0125845

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF VERTICAL TEMPERATURE PROFILES AND GLOBAL CIRCULATION PATTERNS IN THE STRATOSPHERE AND MESOSPHERE, USING ROCKET DATA FROM RESISTANCE THERMOMETER, THERMISTOR, AND GRENADE MEASUREMENTS. THE OBTAINED MEAN TEMPERATURE DISTRIBUTION AS A FUNCTION OF ALTITUDE IS COMPARED WITH DIFFERENT STANDARD AND REFERENCE ATMOSPHERES. SEASONAL AND LATITUDINAL TEMPERATURE VARIATIONS ARE CONSIDERED TOGETHER WITH LONGITUDINAL VARIATIONS IN THE NORTHERN HEMISPHERE. ANALYSIS OF PRELIMINARY GLOBAL CIRCULATION PATTERNS IN THE UPPER STRATOSPHERE AND LOWER MESOSPHERE SHOWS THAT SUMMER ANTICYCLONIC CIRCULATION IS POLARLY SYMMETRICAL AND IS PRACTICALLY THE SAME IN BOTH HEMISPHERES. WINTER CIRCULATION IN THE SOUTHERN HEMISPHERE IS LESS PERTURBED DUE TO THE OROGRAPHY AND UNIFORMITY OF THE UNDERLYING SURFACE IN THIS HEMISPHERE.

FACILITY: GLAVNOE UPRAVLENIE GIDROMETEOROLOGICHESKOI SLUZHBY SSSR, MOSCOW, USSR.

UNCLASSIFIED

1/3 015 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--RESULTS OF OBSERVATION OF SPRING RESTRUCTURING OF CIRCULATION IN THE SOUTHERN HEMISPHERE USING METEOROLOGICAL ROCKETS, SPRING

AUTHOR-(03)-GAYGEROV, S.S., ZAYCHIKOV, B.P., KALIKHMAN, M.YA.

COUNTRY OF INFO--USSR

SOURCE--CENTRAL AEROLOGICAL OBSERVATORY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 4, 1970, PP 381-387

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, MISSILE TECHNOLOGY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METEOROLOGIC ROCKET, ATMOSPHERIC CIRCULATION, OCEANUGRAPHIC SHIP, STRATOSPHERE, MESOSPHERE/(U)A I VOYEYKOV SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0364 STEP NO--UR/0362/70/006/004/0381/0387

CIRC ACCESSION NO--AP0114657

UNCLASSIFIED

2/3 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0114657 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING THE 18TH VOYAGE OF THE RESEARCH VESSLE "A. I. VOYEYKOV" A DETAILED STUDY WAS MADE OF THE ATMOSPHERE USING RADIOSONDES AND METEOROLOGICAL ROCKETS IN THE INDIAN OCEAN. THE RESULTS OF THESE OBSERVATIONS WERE CHARACTERISTIC FOR SUMMER CONDITIONS IN THE MIDDLE LATITUDES WITH EASTERLY WINDS IN THE STRATOSPHERE AND A LOW TEMPERATURE IN THE MESOSPHERE. THE COLLECTED DATA AGREE RATHER WELL WITH THE COSPAR STANDARD ATMOSPHERE CIRA-1965. REGULAR RADIOSONDE OBSERVATIONS WERE MADE THREE TIMES PER DAY DURING THE ENTIRE VOYAGE. ROCKET SOUNDING YIELDED TEMPERATURE DATA TO AN ALTITUDE OF ABOUT 80 KM AND WIND DATA TO 50-55 KM. THE OBSERVED CHARACTERISTIC PROCESSES ARE DESCRIBED: WARMING IN THE UPPER STRATOSPHERE IN THE 50DEGREES LATITUDE RANGE, REVERSAL OF THE HORIZONTAL TEMPERATURE GRADIENT, CHANGE IN ALTITUDE OF THE STRATOPAUSE, CHANGE IN VELOCITY OF STRATOSPHERIC JET STREAMS AND DISPLACEMENT OF THE STRATOSPHERIC ANTICYCLONE SITUTATED OVER THE SOUTHERN PART OF THE OCEAN IN THE DIRECTION OF THE ANTARCTIC CONTINENT. FOR EXAMPLE, THE OBSERVATIONS FOR THE FIRST TIME DISCLOSED STRONG STRATOSPHERIC WARMING IN THE ZONE 45-55DEGREESS AT ALTITUDES 30-45KM. THE REGION OF WARMING CORRESPONDS TO CURRENT CONCEPTS CONCERNING THE INITIAL STAGE OF SPRING RESTRUCTURING OF STRATOSPHERIC CIRCULATION WHICH INDICATE THAT THE WARMINGS FIRST ARE DETECTED AT HIGH LEVELS AND IN THE RELATIVELY LOW LATITUDES AND THEN ARE PROPAGATED DOWNWARD AND POLEWARD. IN THE SOUTHERN HEMISPHERE THE MAXIMUM ZONE CONTENT IS AT 50-55DEGREESS.

UNCLASSIFIED

3/3 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0114657 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--IT MAY BE THAT THE CONSIDERABLE RADIATION HEATING OF THE OZONE LAYER IN THE REGION OF ITS MAXIMUM SERVES AS THE PRIME MOVING FACTOR FOR THE FURTHER DEVELOPMENT OF THE LARGE SCALE RESTRUCTURING PROCESS. THIS PROCESS TAKES PLACE BY THE PROPAGATION OF RIDGES OF ANTICYCLONES SOUTHWARD FROM THE LOW LATITUDES AND THE GRADUAL EXPULSION OF THE FILLING POLAR CYCLONE INTO THE SOUTH AMERICAN SECTOR OF ANTARCTICA.

UNCLASSIFIED

USSR

UDC 538.4

GAYILITIS, A., LIYELAUSUS, O.

"The Internal Hydraulics of MHD Machines with Uneven Distribution of Forces"

Magnitnaya Gidrodinamika, No 2, 1971, pp 123-127.

ABSTRACT: It is demonstrated that if a moving electrodynamic force is distributed unevenly through the cross section of a channel, the pressure developed during turbulent flow must be determined by solution of the problem of internal hydraulics of the channel. The possibility of this solution is demonstrated under conditions of high local slipping. The differences of the p(Q) characteristics from those generally accepted are analyzed. It is noted that local velocities will greatly exceed the mean flow velocity.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--NITROGEN CONTAINING ORGANOSILICON COMPOUNDS. XV. MORPHOLINO, N,METHYLPIPERAZINYL, AND PERHYDROAZEPIN,1,YL,SILANES -U-

AUTHOR-(05)-LUKEVITS, E., PESTUNOVICH, A.YE., GAYLE, R., PESTUNOVICH, V.A., VORONKOV, M.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 620-3

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMINE, MORPHOLINE, ORGANIC SILANE, THERMAL EFFECT, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0889 STEP NO--UR/0079/70/040/003/0620/0623

CIRC ACCESSION NO--AP0124552

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ME SUB3 NEGATIVE SINET SUB2 OR ME SUB2 SI(NET SUB2)SUB2 WITH HIGHER AMINES SUCH AS MORPHOLINE, 1,METHYLPIPERAZINE OR PERHYDROAZEPINE GAVE: TRIMETHYL(MORPHOLINO) SILANE, B SUB18 61-2DEGREES, N SUBD PRIME20 1.4385, D PRIME20 0.9014; DIMETHYLDIMORPHOLINOSILANE, B SUB4 106-10DEGREES, 1.4743, 1.0163. METHYLTRIMORPHCLINOSILANE, M. 109-12DEGREES. TRIMETHYL(1,METHYL,4,PIPERAZINYL)SILANE, B SUB35 65DEGREES, 1.4461, 0.8590. TRIMETHYL(PERHYDROAZEPIN,1,YL)SILANE, B SUB21 74-6DEGREES, 1.4525, C.8547. DIMETHYLDIPERHYDROAZEPIN,1,YLSILANE, B SUB2 117-20DEGREES, 1.4860, 0.9380. FACILITY: INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

USSR

UDC: 535.215.5

GAYLIS, A. K., SILINYSH, E. A., Power Engineering Physics Institute, Academy of Sciences of the Latvian SSR

"Concerning the Shape of a Photocurrent Pulse in Thin-Film Organic Semiconductors"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fizichskikh i Tekhnicheskikh Nauk, No 5, 1972, pp 13-21

Abstract: The authors give a precise calculation of the shape of a photocurrent pulse when light is uniformly absorbed in a thin-film insulator under conditions of finite duration of the generation of charge carriers. It is shown that a previously determined semiempirical expression can be derived by approximate calculation. The current pulse shapes which are found are compared with experimental results of the study of pulse photocurrent in tetrathionaphthacene thin-film systems. It is shown that the photocurrent pulse shape can be qualitatively described by a simple semiempirical expression if a 100% overstatement of the generation time constant is taken into account. A procedure is outlined for determining the generation time constant, and the limits of applicability of the theoretical calculation are estimated.
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USSR

UDC 621.371.332

VLASOVA, O. K., GAYLIT, T. A., and GUSEV, V. D.

"Scattering Angles in the Reflection of Radio Waves from the Ionosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 383-387 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A337)

Translation: A comparison is made of the experimental histograms for θ and ψ with the theoretical laws of distribution in scattering by large-scale and small-scale ionospheric nonuniformities. For these cases, the distribution laws of the polar angle differ and are satisfactorily described by the theoretical laws for the geometrical optics zone and the Fraunhofer diffraction zone. The distribution of the azimuthal angle in the plane perpendicular to the direction of propagation in all cases has two maxima. One illustration, bibliography of six. A. L.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SELF EXCITATION OF A MAGNETIC FIELD BY A PAIR OF RING VORTICES -U-

AUTHOR--GAYLITIS, A.

COUNTRY OF INFO--USSR

SOURCE--MAGNITNAIA GIDRODINAMIKA, VOL. 6, JAN.-MAR. 1970, P. 19-22

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC FIELD, PULSE EXCITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1847 STEP NO--UR/0382/70/006/000/0019/0022

CIRC ACCESSION NO--AP0118811

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118811

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF TWO STATIONARY RING VORTICES HAVING A COMMON SYMMETRY AXIS, SITUATED IN AN UNBOUNDED ELECTRICALLY CONDUCTING FLUID. AN ANALYTICAL SOLUTION IS OBTAINED TO THE PROBLEM OF THE SELF EXCITATION OF A MAGNETIC FIELD BY SUCH A VORTEX SYSTEM, UNDER THE ASSUMPTION THAT THE VORTICES ARE THIN. THE CONDITIONS FOR THE SELF EXCITATION OF THE FIELD ARE DETERMINED. IT IS SHOWN THAT IN THE CASE WHERE THE VORTICES ARE SPACED FAR APART, ROTATION OF THE FLUID IN THE SAME DIRECTION LEADS TO THE EXCITATION OF A DIPOLE FIELD, WHILE ROTATION IN THE OPPOSITE DIRECTION LEADS TO THE EXCITATION OF A QUADRUPOLE FIELD. MULTIPOLARITY OF THE FIELD INCREASES AS THE SPACING BETWEEN THE VORTICES DECREASES.

UNCLASSIFIED

USSR

GAYLITIS, A. K., FREYBERG, Ya. Zh.

"Self-Excitation of a Magnetic Field by a Pair of Circular Vortices"

7-ye. Soveshch. po Magnit. Gidrodinamike. T. 1. [Seventh Conference on Magnetic Hydrodynamics, Vol 1 -- Collection of Works], Riga, Zinatnye Press, 1972, pp 193-195, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B69, by L. M. Baltin).

Translation: The possibility is studied of self-excitation of a magnetic field by an axisymmetrical pair of stationary circular vortices in an unlimited, homogeneous, conducting, incompressible fluid, without using the limitation $R << \min(z_0, a)$; a special form of the $v_x(r)$ function is used. It is assumed that the motion is concentrated either in a thin layer (thickness $\delta << R$) on the surface of the torus, while the remaining portion of the fluid is stationary. The dependence of field on azimuth ϕ is retained harmonic

$$B \sim e^{im\varphi}, \quad m = \pm 1, \pm 2, \pm 3, \ldots$$

but R_m is defined as the Eigen value of a certain integral equation. Integration is performed only with respect to the area of motion of the

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USSR

GAYLITIS, A. K., FREYBERG, Ya. Zh., 7-ye. Soveshch. po Magnit. Gidrodinamike. T. 1., Riga, Zinatnye Press, 1972, pp 193-195.

fluid, i.e., with respect to the surface layer of the two toruses. The rates of motion in the two vortices are assumed identical and opposite, allowing integration to be performed for a single vortex. The Eigen values R_m are calculated by computer.

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1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CLOSE COUPLING INFLUENCE ON THE THRESHOLD BEHAVIOR OF ELECTRON ATOM EXCITATION CROSS SECTIONS -U-

AUTHOR--GAYLITIS, M.

G

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP 364-376

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SPIN ORBIT COUPLING, CAPTURE CROSS SECTION, EXCITATION CROSS SECTION, ELECTRON, WIGNER EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1246 STEP NO--UR/0646/70/003/003/0364/0376

CIRC ACCESSION NO--AP0124878

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV79
CIRC ACCESSION NO--AP0124898
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THRESHOLD BEHAVIOR OF CROSS SECTIONS IN THE CASE OF NON DIAGONAL POTENTIAL SIMILAR TO AR NEGATIVE PRIME2 IS CONSIDERED. THE DEVIATIONS FROM WIGNER'S LAW AND THE BEHAVIOR OF CROSS SECTIONS FOR VERY LARGE A ARE INVESTIGATED. FACILITY: INSTITUT FIZIKI AKADEMII NAUK LATVSSR.

UNCLASSIFIED

USSR UDC 616.988.75-085.339:576.858.75.095.383:616.988.75-035.2]-036.1

GAYLONSKAYA, I. N., KOPELEV, M. F., BUSUYEK, G. P., KUZNETSOV, V. P., and LOZINSKAYA, T. M., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Clinical Course of Influenza Treated With Interferon and Symptomatic Agents"

Moscow, Klinicheskaya Meditsina, No 2, 1973, pp 117-119

Abstract: The clinical course of influenza was much milder in patients treated solely with concentrated leukocytic interferon than in a matched group treated with conventional symptomatic drugs. Interferon treatment was administered 4 days: 2 drops (= 200 units) instilled in each nostril the first and second days of the disease every other hour and the same amount on the third and fourth days 5 to 6 times a day. Total interferon used was 4 to 6 ml. In these patients, the symptoms of intoxication were less pronounced than in controls and they lasted 2.4 days compared to 3.8 days while chills persisted 1.8 and 2.6 days, respectively. Body temperature returned to normal on day 2 or 3 of the disease compared to day 4 or 5 in those treated with symptomatic drugs. The EKG changes too were less pronounced in the patients given interferon. Interferon did not produce side effects or complications nor did it prevent the formation of type-specific antibodies.
1/1

1/2 C37 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SPHERICAL CATALYST BASED ON ALUMINUM OXIDE -U-

AUTHOR-(02)-SAITOVA, M.A., GAYLYUNAS, G.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,739
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM OXIDE, OXIDE CATALYST, CHEMICAL PATENT, MECHANICAL STRENGTH, THERMAL STABILITY, CHROMIUM COMPOUND, MOLYBDENUM COMPOUND, PETROLEUM PRODUCT, KEROSENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1741 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132007

UNCLASSIFIED

2/2 C37 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0132007
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SPHERICAL CATALYST BASED ON AL SUB2 O SUB3, SUCH AS ALUMINOCHROMIUM OR ALUMINOMOLYBDENUM OXIDE, WAS PREPD. BY THE FORMATION OF A GEL OF AL(OH)SUB3 AND A 2 LAYER MOLDING LIQ., THE UPPER LAYER OF WHICH WAS A LIGHT PETROLEUM PRODUCT, SUCAH AS KEROSINE, AND BY THE SATN. OF AL(OH)SUB3 SPHERULES WITH A SOLN. OF A COMPD. OF AN ACTIVE CATALYTIC COMPONENT, DRYING, AND ROASTING. TO RAISE THE MECH. AND THERMLA STRENGTH OF THE CATALYST CONTG. AN INCREASED AMT. OF ACTIVE COMPONENT, A DIL. 12-15PERCENT NH SUB3 SOLN. OF THE NH SUB4 SALT OF THE ACTIVE CATALYTIC COMPONENT WAS USED FOR THE LOWER LAYER OF THE MOLDING LIQ. FACILITY: BASHKIR INSTITUTE OF ORGANIC CHEMISTRY.

UNCLASSIFIED

1/4 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GEOPHYSICAL INVESTIGATIONS OF THE DEEP STRUCTURE OF THE FLOOR OF SEAS AND OCEANS -U-

AUTHOR-(03)-USHAKOV, S.A., GAYNANOV, A.G., FEDYNSKIY, V.V.

COUNTRY OF INFO--USSR, PACIFIC OCEAN

SOURCE--MOSCOW, VESTNIK MOSKOVSKOGO UNIVERSITETA, GEOLOGIYA, NR 2, 1970, PP 125-138

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN BOTTOM TOPOGRAPHY, GRAVITATION FIELD, GRAVIMETER, PENDULUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0565 STEP NO--UR/0212/70/000/002/0125/0138

CIRC ACCESSION NO--AP0128123

UNCLASSIFIED

2/4 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0128123

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE GIVES SOME RESULTS OF WORK BY SPECIALISTS OF THE GEOPHYSICS DEPARTMENT MOSCOW STATE UNIVERSITY IN THE FIELD OF MARINE GEOPHYSICAL INVESTIGATIONS PERTAINING TO DEEP STRUCTURE OF THE FLOOR OF THE WORLD OCEAN. THE GREATEST CONTRIBUTION HAS BEEN MADE TO STUDY AND ANALYSIS OF ITS GRAVITY FIELD. SURFACE GRAVITY MEASUREMENTS AT SEA ARE MADE WITH GRAVIMETERS AND PENDULUMS AND HAVE A LOW ACCURACY (MEAN SQUARE ERROR PLUS OR MINUS 5-10 MGAL) DUE TO THE INTERFERENCE CREATED BY WAVES AND THE CONSIDERABLE DURATION OF EXPEDITIONARY VOYAGES. EMPHASIS IN THIS REPORT IN ON THE MORPHOLOGY OF THE GRAVITY FIELD IN THE NORTHWESTERN PART OF THE PACIFIC OCEAN. THE MAP OF BOUGUER ANOMALIES (FIG. 1 IN THE TEXT) SHOWS THAT THEY ARE CHARACTERIZED BY ZONALITY. THREE ZONES CAN BE DISTINGUISHED: OCEANIC, WITH LARGE POSITIVE ANOMALIES UP TO PLUS 400-500 MGAL; TRANSITIONAL, EXTENDING FROM THE ABYSSAL KURILE TRENCH TO THE SHORES OF THE CONTINENT, CHARACTERIZED BY A MODERATE POSITIVE BACKGROUND; CONTINENTAL, WITH A PREDOMINANCE OF NEGATIVE ANOMALIES. THE ZONALITY OF GRAVITY ANOMALIES IS CAUSED NOT ONLY BY A DECREASE IN CRUSTAL THICKNESS FORM THE CONTINENT TO THE OCEAN, BUT ALSO BY NONUNIFORMITY OF THE UPPER MANTLE. IT REFLECTS CHANGES IN THE DENSITY OF MATTER TO A DEPTH OF HUNDREDS (NOT TENS) OF KILOMETERS. THE MOST COMPLEX MORPHOLOGY IS CHARACTERISTIC OF THE TRANSITIONAL ZONE WHICH OCCUPIES MOST OF THIS REGION. IN ITS GRAVITATIONAL CHARACTERISTICS IT DIFFERS CONSIDERABLY FROM ADJACENT PARTS OF THE ASIATIC CONTINENT.

UNCLASSIFIED

3/4 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0128123

ABSTRACT/EXTRACT--WHEREAS IN BRIMOR'YE AND IN THE NORTHEASTERN PART OF THE CONTINENT POSITIVE GEOLOGICAL STRUCTURES AND RELIEF ARE USUALLY ACCOMPANIED BY NEGATIVE BOUGUER ANOMALIES, ON SAKHALIN AND KAMCHATKA THEY CORRESPOND TO POSITIVE ANOMALIES, SOMETIMES OF RATHER CONSIDERABLE INTENSITY. WITHIN THE TRANSITIONAL ZONE THERE ARE TOW SUBZONES, SUBOCEANIC AND SUBCONTINENTAL. IN THIS REGION IT IS COMMON TO OBSERVE ZONES WITH HIGH GRADIENTS OF BOUGUER ANOMALIES (MORE THAN 4-5 MGAL-KM). BY TRACING AND QUANTITATIVELY INTERPRETING SUCH ZONES IT IS POSSIBLE TO DETECT MAJOR DEEP FAULTS ALONG WHICH SIGNIFICANT VERTICAL DISPLACEMENTS OF THE PRINCIPAL CRUSTAL DISCONTINUITIES HAVE TAKEN PLACE. FAYE ANOMALIES INDICATE THAT THE ISLAND ARCS AND ADJACENT ABYSSAL TRENCHES CONSTITUTE ZONES OF WELL EXPRESSED IMPAIRMENTS OF ISOSTATIC EQUILIBRIUM. OVER ISLAND ARCS THERE ARE STRONG POSITIVE FAYE ANOMALIES; OVER TRENCHES THEY ARE NEGATIVE. THESE ANOMALIES INDICATE THAT: 1) THE OUTER EDGE OF THE TRANSITION ZONE, BOUNDING THE OCEANIC ZONE, IS A FRONT OF PRESENT DAY TECTONIC ACTIVITY; 2) ISLAND ARCS AND ABYSSAL TRENCHES ARE THE YOUNGEST GEOLOGICAL FORMATIONS IN THIS REGION; 3) IN THIS REGION THE EARTH'S GRAVITY FIELD HAS NOT YET SUCCEEDED IN ADAPTING THE STRUCTURE OF THE INTERNAL LAYERS OF THE CRUST TO EQUILIBRIUM CONDITIONS; 4) THE TECTONIC FORCES ACTING AND DOMINATING HERE ARE OPERATING AGAINST GRAVITATIONAL ISOSTATIC FORCES.

UNCLASSIFIED

4/4 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0128123

ABSTRACT/EXTRACT--(FURTHER DISCUSSION IN THE TEXT CENTERS ON FIG. 3, A MAP OF FAVE ANOMALIES; FIG. 4, A MAP OF ISOSTATIC ANOMLIES IN FAR EASTERN SEAS; FIG. 5, A MAP OF MAGNETIC ANOMALIES IN THE NORTHERN PART OF THE PACIFIC OCEAN; FIG 6, A CROSS SECTION OF THE CRUST THROUGH THE CENTRAL AND SOUTHERN INDIAN OCEAN.

UNCLASSIFIED

USSR UDC: 621.372.413(088.8)

GAYNANOV, Kh. N., BYCHKOV, L. V., Ural Polytechnical Institute imeni S. M. Kirov

"A Method of Temperature Stabilization"

USSR Author's Certificate No 281574, filed 24 Jun 68, published 10 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B174 P)

Translation: A method is proposed for temperature stabilization of a ferrite resonator by orientation of a ferrite sphere relative to a magnetic field. To simplify the stabilization process and reduce the temperature coefficient of the resonator, the sphere is oriented directly in the resonator on the central frequency of the working band in a "quasi-isotropic" direction. The sphere is set in without preorientation in the crystallographic plane.

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910006-1"

USSR

UDC: 621.372.852.1

PANCHENKO, B. A., GAYNANOV, Kh. N.

"An Electronically Tunable SHF Filter Using the Effect of Ferromagnetic Resonance"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 36-42 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B142)

Translation: The authors consider a filter in the form of a section of rectangular waveguide with symmetric inductive diaphragm, a spherical ferrite specimen being in place in the center of the aperture. Graphs are plotted for the parameters of the filter as a function of the width of the aperture for various degrees of coupling between the ferrite and waveguide. It is shown that the filter may be the band--pass or band-elimination type depending on the degree of coupling and the size of the aperture. Four illustrations, bibliography of six titles. N. S.

1/1

USSR C UDC: 621.372.854

GAYNANOV, Kh. N., OSHIVALOV, V. D.

"Effect of Reflections on the Parameters of a Ferrite Band-Elimination Filter"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 43-51 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B105)

Translation: The authors consider a band-elimination filter in the form of a waveguide section with a spherical element cut from a ferrite single crystal magnetized to saturation. Formulas are derived which define the principal parameters of the filter in the case of mismatched temperature and load. Consideration is given to its use as a frequency discriminator in the AFC system of SHF oscillators or in a frequency measurement system. Six illustrations, bibliography of seven titles.
N. S.

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USSR UDC 621.373.826:535

GAYNER, A. V., KRIVOSHCHEKOV, G. V., KRUGLOV, S. V., LEBEDEV, V. V., and MARENNIKOV, S. I.

"Studying the Characteristics of a Wide-Angle System for Converting Images From Infrared to Visible Region"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics — collection of works), Vyp.2, Novosibirsk, 1972, pp 360-366 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D144)

Translation: None.

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USSR

UDC 533.411+541.1

OVCHINNIKOV, I. V., GAYNULIN, I. F., GARIF'YANOV, N. S., Corresponding Member of the Academy of Sciences USSR and KOZYREV, B. M., Kazan Physico Technical Institute, Kazan, Academy of Sciences USSR

"The Nature of Superfine Interaction with P^{31} in Dithiophosphenes Cu (II), VO(II), CrO(III), MoO(III) and WO(III)"

Moscow, Doklady Academy Nauk SSSR, Vol 191, No 2, 11 Mar 70, pp 395-398

Abstract: One of the significant characteristics of electron paramagnetic resonance is the possibility of observing the spectra supplementary superfine structures (SSFS) in which there is interaction of an unpaired electron with nuclear magnetic moments of atoms, situated considerable distance from the paramagnetic "ion". The mechanism of such a distant dislocation of the unparied electron in many cases is still not clear and investigation of it is necessary both for taking from SSFS information about the nature of chemical bonds in complex compounds, and also for deeper understanding of the nature of superfine interaction itself.

USSR

OVCHINNIKOV, I. V., et al., Doklady Academy Nauk SSSR, Vol 191, No 2, 11 Mar 70, pp 395-398

In the article the authors review experimental results obtained by others in the investigation of EPR of dithiophosphene complexes of Cu(II), VO(II), CrO(III), MoO(III), and WO, as well as give the following results of their investigation of the nature of SSFS of P^{31} on the compounds Cu(II) and VO(II): (a) the appearance of SSFS of P^{31} especially in the complex VO(II), of extremely large intensity; (b) significant distinction in the magnitude of the superfine interaction isotropic constant AP in Cu compounds in comparison with analogous V compounds; (c) little anisotropy of superfine interaction; (d) the constant A^P increases during substitution of less electronegativr radicals for greater electronegative ones. Data on the other investigated compounds is also given.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--NATURE OF PHOSPHORUS,31 HYPERFINE INTERACTION IN DITHIOPHOSPHINE COMPLEXES OF CU PRIME2 POSITIVE, VO PRIME2 POSITIVE, CRO PRIME3

AUTHOR-(04)-OVCHINNIKOV, I.V., GAYNULIN, I.F., GARIFYANOV, N.S., KOZYREV, B.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 395-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--PHOSPHORUS ISOTOPE, PHOSPHORUS SULFIDE, COPPER COMPLEX, CHROMIUM COMPLEX, MOLYBDENUM COMPLEX, TUNGSTEN COMPOUND, VANADIUM COMPLEX, HYPERFINE STRUCTURE, MOLECULAR ORBITAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1508 STEP NO--UR/0020/70/191/002/0395/0398

CIRC ACCESSION NO--AT0138508

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0138508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TABULATION OF PRIME31 P FINE STRUCTURE LINES IS GIVEN FOR THE COMPLEXES OF CU PRIME2 POSITIVE, CRO PRIME3 POSITIVE, MOO PRIME3 POSITIVE, WO PRIME3 POSITIVE, AND VO PRIME2 POSITIVE WITH R SUB2 PS SUB2 PRIME NEGATIVE ION IN WHICH R IS A PR, PH, ET, OR ETO GROUP. IN THE VANADYL COMPD. A GREAT DEAL OF FINE STRUCTURE ARISES FROM PRIME31 P. THE FINE STRUCTURE IS EXPLAINED IN TERMS OF MO THEORY. FACILITY: KAZAN. FIZ. TEKH. INST., KAZAN. USSR.

UNCLASSIFIED

USSR UDC: [621.395.741+621.3.051.025]:621.3.013.7.001.24

GAYNULLIN, R. A., ZARKHI, I. M., and KOSTENKO, M. V.

"Computing the Deleterious Effects of Single-Phase Short-Circuiting in High-Voltage Networks on Communications Cables"

Moscow, Izvestiya AN SSSR--Energetika i transport, No 1, 1972, pp 104-111

Abstract: A method is developed of computing the deleterious effects of power networks carrying 110 kV and higher, operating with transformer neutrals at dead ground, in single-phase short-circuiting. The currents in such networks, amounting to tens of kiloamperes, put a heavy stress on grounded circuits and set up magnetic fields which galvanically and inductively affect nearby communication cables. Although there are methods for computing these deleterious effects, they calculate the galvanic and inductive effects separately, then sum them up to arrive at a very approximate result which does not take into account the phase relations between the individual components. This defect is avoided in the present method, which is based on the numerical integration of a system of inhomogeneous differential equations with the boundary conditions accounted for. An example of how the computation is done on the "Minsk-22" computer is given.

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USSR

UDC 548.31

VINOKUROV, V. M., GAYNULLINA, N. M., et al

"$Zr^{4+} \rightarrow Y^{3+}$ Isomorphism and Specifics of Accompanying Charge Compensation in Zircon Crystals"

Moscow, Kristallografiya, Vol. 16, No. 2, 1971, pp 318-323.

Abstract: The spectrum of electron paramagnetic resonance (EPR) is studied in natural zircon crystals; it is a doublet with $g_z = 2.0168$, $g_x = 2.0033$, $g_y = 2.0076$, and A = B = C = 0.34 gauss. The investigations have shown that the spectrum results from the O^- ion. A model of the paramagnetic center $[ZrO_8]^{12} \rightarrow [YO_8]^{12-}$ is suggested. It is shown that the charge compensation of the substitution $Zr^{4+} \rightarrow Y^{3+}$ is provided by $[OH]^-$ groups, replacing the O^{2-} ions in the second coordination sphere. The modulation distortion of the EPR spectrum is briefly discussed.

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USSR UDC 543.4:546.21.082

GAYNUTDINOV, R. D., and TOKTOMYSHEV, S. Zh.

"On the Possibility of Devising an Apparatus for Measuring the Concentration of Atomic Oxygen Particles in Dissociated Gases"

Tr. Kirg. Un-ta. Ser. Fiz. N. [Works of Kirgiz University, Series of Physical Sciences], 1972, No 1, pp 66-68 (from Referativnyy Zhurnal, No 11, Nov 72, 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 11, Nov 72, 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 11.32. 758 by V. S.K.)

Translation: The application advantages and disadvantages of application of the method of heat sensors and mass-spectrometers for measuring concentrations of atomic oxygen in dissociated gases are discussed (complexity of measuring methods, inadequate exactness, absence of selectivity, et al.). The possibility is discussed to create an apparatus (A) on the basis of chemical detectors for measuring concentrations of oxygen atoms in dissociated gases. The apparatus must represent a photometer of a transparency degree of chemical detectors by the photoelectric method. To measure absolute concentrations of oxygen atoms, the scale of A must be graduated by an independent method in terms of absolute concentrations. The measuring of unknown concentrations of oxygen reduces to

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USSR

GAYNUTDINOV, R. D. and TOKTOMYSHEV, S. Zh., Tr. Kirg. Un-ta. Ser. Fiz. N., 1972, No 1, pp 66-68

irradiation of the detector in the given medium with subsequent measuring of its transparency on A. The needle on A will reckon the reading directly in concentrations. One illustr., eleven biblio. refs.

2/2

USSR

UDC 620.194:620.197.6

KARLASHOV, A. V., GAYNUTDINOV, R. G., and PANKOV, A. T., Kiev Institute of Civil Aviation Engineers

"Relationship of the Effectiveness of Cladding Alloy D16 to the Aggressiveness of a Medium in Corrosion Fatigue"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 23-27

Abstract: Results are presented from a study of the fatigue strength of type D16 clad aluminum alloy when subjected to air, tap water, water condensate, and 3% solution of NaCl. The D16 alloy had the following chemical composition (in %): 4.1 Cu, 1.6 Mg, 0.5 Mn, 0.4 Fe, 0.3 Si, 0.24 Zn, 0.01 Ni, and 0.04 Ti. Mechanical properties of the clad aluminum material were:

	Thickness, mm	TS, kg/mm^2	YS, kg/mm^2	Elongation %
D16AT (clad)	1.85	45.6	32.18	18.61
D16T (unclad)	1.82	46.5	32.68	19.03

It was found that the fatigue strength of clad D16 is lower than that of the unclad alloy in air, about the same in tap water, and somewhat increased

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USSR

KARLASHOV, A. V., et al., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 23-27

in the condensate and 3% NaCl. The main conclusion drawn is that cladding does not improve the fatigue strength or corrosion resistance of alloy D16 to warrant its use in the manufacture of aircraft skins (fairings, wings, fuselage, etc.) Four figures, one table, six bibliographic references.

2/2

USSR

UDC 620.197.6

KARLASHOV, A. V., GAYNUTDINOV, R. G., and LUKANIN, S. N., Kiev Institute of Civil Aviation Engineers

"Determination of Electrolyte Residues in the Gap of a Welded and Anodized Joint"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 102-103

Abstract: Tests were conducted to determine if the concentration of sulfuric acid in the residue, residing in the gap of a spot-welded sample after anodization was high enough to cause corrosion damage. Using sheet samples of D16-AT alloy, an angle piece was spot welded to a flat sample which was then anodized. The samples were then washed with distilled water which was tested for its electroconductivity and compared to a standard sulfuric acid electrolyte. It was found that electrolyte concentration in the weld gap was less than the standard as well as less than the amount of acid on the open anodized surfaces. The conclusion was that aluminum alloys and their weld joints can be anodized without danger of corrosion damage occurring in the weld. 3 figures, 1 table, 4 bibliographic references.

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1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHANGE OF RESIDUAL STRESSES IN ANODIC FILM ON DURALUMINUM D16T DUE TO CYCLIC LOADING -U-
AUTHOR-(02)-KARLASHOV, A.V., GAINUTDINOV, R.G.

COUNTRY OF INFO--USSR

SOURCE--FIZIKO-KHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, NO. 2, 1970, P. 26-30.
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, ALLOY DESIGNATION, BIBLIOGRAPHY, METAL CORROSION, RESIDUAL STRESS, AVIATION INSTITUTE, STRESS CORROSION/(U)D16T ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0063 STEP NO--UR/0369/70/006/002/0026/0030

CIRC ACCESSION NO--AP0125898
UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0125898
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE RELATIONSHIP BETWEEN RESIDUAL STRESSES IN AN ANODIC FILM ON DURALUMINUM D16T AND THE FILM THICKNESS. SPECIAL ATTENTION IS GIVEN TO THE EFFECT OF CYCLIC LOADINGS IN AIR AND IN CORROSIVE MEDIA ON THE VALUE OF THESE STRESSES. IT IS FOUND THAT THE MAXIMUM COMPRESSIVE STRESSES IN THE FILM ARISE WHEN ITS THICKNESS IS 3 MICRONS. FACILITY: KIEVSKII INSTITUT INZHENEROV GRAZHDANSKOI AVIATSII, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR UDC 620.194.620.197.6

KARLASHOV, A. V., and GAYNUTDINOV, R. G., Kiev Institute of Civil Air Fleet Engineers

"Effect of Anodic Film in Fatigue and Corrosion-Fatigue Destruction of D16T Duralumin"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 5, 1970, pp 10-15

Abstract: Since data on the effect of anodic films on the durability of aluminum alloys in corrosive media are quite limited and information concerning the effect of anodizing in air and in a corrosive medium is generally unavailable, this article presents the results of fatigue and corrosion fatigue tests of anodized specimens of D16T, results of the determination of residual tensions in the anodic film, and the results of measuring the potentials of anodized specimens in the process of cyclic loading. The experiments were done on cylindrical specimens of the alloy in tempered and naturally aged states; the anodizing was done by the sulfuric acid method, which is the method generally used for protecting aluminum alloy products from corrosion. Anodic oxide films of various thicknesses, 3, 5.8, 10.5, 15.[illegible],

USSR

KARLASHOV, A. V., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 5, 1970, pp 10-15

and 40μ , were obtained by varying the length of the anodization process. The results of the tests showed that the effect of anodization on the durability of the specimens is a function of the anodic film thickness and the tension level. At thicknesses less than or equal to 5.8μ , and at high tension levels the durability of the anodized specimens was lower than that of the non-anodized specimens; at low tension levels, however, it was the other way around.

USSR

UDC 537.534.8

ARIFOV, U. A., RAKHIMOV, R. R. and GAYPOV, S.

"Electron Emission From Single Crystals of Alkali-Halide Compounds Under Bombardment by Ions and Atoms of Inert Gases"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 3, Mar 71, pp 562-566

Abstract: The potential and kinetic electron emission from KBr, NaCl, and LiF crystals under bombardment by singly charged ions and neutral atoms of He, Ne, Ar, and Kr in the range 200-6000 ev (from 60 ev in the case of He) is discussed. The coefficients γ^+ and γ^0 were measured as a function of the energy E_0 for bombardment of the three single crystals by the ions and atoms of the four elements. The coefficients increased monotonically with an increase in the energy of the bombarding particles. In all cases, the coefficient γ^+ is greater than the coefficient γ^0 at low energies. In the low-energy region the difference in the values of γ^+ and γ^0 for a given energy is apparently caused by the potential electron emission. It was observed that there was a decrease in the difference in the values γ^+ and γ^0 with the growth of the kinetic energy of the primary particles.

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USSR

In certain cases at high energies, the values of the coefficients γ^- and γ^+ coincide with one another and even the coefficient γ^0 becomes greater than γ^+. Such a change in the curves with an increase in γ^0 is associated with a change in the coefficient of potential emission with an increase in E_0 and a more effective kinetic stripping of electrons from dielectrics by neutral atoms. Curves $\gamma^0(E_0)$ for the three different crystals are given. In the case of Ar and Kr atoms, the curves are such that for a given kinetic energy γ^0 increases with a decrease in the width of the forbidden zone of the crystals. In the case of He and Ne atoms, a different behavior is observed. It is concluded that, as distinct from metals for which there was shown the absence of a considerable effect of ion velocity on the potential emission of electrons, in the case of alkali-halide compounds there is a considerable effect of ion velocity on the coefficient of potential electron emission. The presence of electron emission at energies below the threshold energies E_0, even in cases in which $eV_i < 2W$, indicates that electron emission occurs not only from the valence zone but also from local levels located in the forbidden zone of the dielectric. The preservation of individual properties of an atomic particle on the surface of a dielectric due to difficult electron exchange is given as a possible explanation of increased electron emission in the case of bombardment by atoms: i.e., the presence of the effect of the charge of the bombarding particle on the coefficient of kinetic emission of the electrons.

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Refractory Materials

+ 12

UDC 549.2

USSR

GROSHEVA, V. M., KARPINOS, D. M., PILIPOVSKIY, Yu. L., PANASEVICH, V. M., GAYOVA, T. I., AND SHAMATOV, Yu. M., Institute of Problems of Material Science, Academy of Sciences Ukr SSR

"Refractory Material on an Aluminum Nitride Base"

Moscow, Ogneupory, No 5, May 71, pp 54-56

Abstract: An investigation was made of the reinforcement of aluminum nitride by fiberlike single crystals of mullite ($3Al_2O_3 \cdot 2SiO_2$) synthesized at the Institute of Problems of Material Science, Academy of Sciences Ukr SSR. The refractory material is characterized by chemical inertness and high resistance to thermal shock. It is recommended for lining of high-temperature installations operating in aggressive media, in the presence of abrupt thermal cyclings, and by high mechanical loadings. Three figures, two tables, six bibliographic references.

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USSR UDC 666.3.022.519

GROSHEVA, V. M., KARPINOS, L. M., PILIPOVSKIY, YU. L., Candidates of Technical Sciences, GAYOVAYA, T. I., SHAMATOV, YU. M., Institute of Problems of Materials Science, Academy of Sciences, Ukrainian SSR

"Impact-Resistant Ceramic Materials"

Moscow, Steklo i Keramika, No 11, Nov 70, pp 36-37

Abstract: The authors have conducted a project on increasing the impact strength of ceramic material on the basis of boron nitride by the method of reinforcement with filamentary monocrystals of mullite ($3Al_2O_3.2SiO_2$), obtained in the Institute of Research on the Problems of Materials, Academy of Sciences, Ukrainian SSR. The reinforcement method developed by them makes it possible to obtain products on the basis of boron nitride, which possess high impact strength. The thermal stability of the products permits their use as insulating materials in high-temperature units with cyclical heating. The chemical inertness and the high impact strength permits the use of the obtained

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USSR

GROSHEVA, V. M., et al, Steklo i Keramika, No 11, Nov 70, pp 36-37

material in chemical machine building. 1 figure, 1 table, 1 footnote bibliographic reference, 3 bibliographic entries.

2/2

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--STABILITY OF CYLINDRICAL SHELLS UNDER THE ACTION OF CONCENTRATED FORCES -U-

AUTHOR--GAVRILENKO, G.D.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, MAR. 1970, P. 25-31

DATE PUBLISHED----MAR 70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS

TOPIC TAGS--CYLINDRIC SHELL STRUCTURE, SHELL STRUCTURE STABILITY, ISOTROPIC PROPERTY, COMPRESSIVE STRESS, STRESS DISTRIBUTION, NONLINEAR THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0864 STEP NO--UR/0198/70/006/000/0025/0031

CIRC ACCESSION NO--AP0116374

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0116374
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A NUMERICAL METHOD, BASED ON THE METHOD OF NETWORKS, FOR CALCULATING THE STABILITY OF ISOTROPIC CYLINDRICAL SHELLS SUBJECTED TO LONGITUDINAL COMPRESSIVE LOADS UNIFORMLY DISTRIBUTED OVER SMALL CYCLICALLY SYMMETRICAL STRIPS AT THE END FACE CIRCUMFERENCES. THE CRITICAL LOAD IS DETERMINED WITHIN THE FRAMEWORK OF NONLINEAR THEORY. THE METHOD PROPOSED TAKES INTO ACCOUNT THE MOMENTS IN THE SUBCRITICAL STATE. THE CRITICAL LOADS OBTAINED BY THIS METHOD ARE FOUND TO BE SMALLER THAN IN THE CASE OF CLASSICAL METHODS. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT MEKHANIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--STRUCTURAL CHANGES IN TITANIUM HYDRIDE AT HIGH HYDROGEN CONCENTRATIONS -U-

AUTHOR-(02)-AZARKH, Z.M., GAYRILOV, P.I.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 275-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--TITANIUM COMPOUND, HYDRIDE, HYDROGEN, GAS CONTAINING METAL, METAL CONTAINING GAS, SOLID SOLUTION, BETA PHASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0909 STEP NO--UR/0070/70/015/002/0275/0279

CIRC ACCESSION NO--AP0116419

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116419

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TI-H SYSTEM WAS STUDIED TO REFINE THE PHASE BOUNDARIES AND THE CUBIC AND TETRAGONAL LATTICE PARAMETERS AS A FUNCTION OF THE H CONCN. AND TEMP. IN THE 2 PHASE REGION (TIH SUB0.15-TIH SUB1.7) A HYDRIDE WITH THE COMPN. TIH SUB1.5 WITH A DEFECTIVE FCC. LATTICE (BETA PHASE) AND A SOLID SOLN. OF H IN METALLIC TI (ALPHA PHASE) EXIST. THE LATTICE PERIOD OF THE FORMER REMAINS CONST. IN THIS REGION, A EQUALS 4.404 ANGSTROM. IN THE HOMOGENEOUS CUBIC BETA PHASE (TIH SUB1.5-TIH SUB1.7), A SOLID SOLN. OF H IN THE DEFECTIVE HYDRIDE IS FORMED. IN THIS CASE A STATISTICAL FILLING OF THE TETRAHEDRAL SEGMENTS BY H ATOMS IS ASSUMED. THE LATTICE PERIOD INCREASES TO A EQUALS 4.425 ANGSTROM FOR TIH SUB1.7. BEGINNING WITH THIS COMPN. AN ORDERED FILLING OF THE TETRAHEDRAL SEGMENTS SETS IN, WHICH RESULTS IN THE TETRAGONAL DISTORTION OF THE CUBIC LATTICE. THE NEW STRUCTURE IS TETRAGONAL, FACE CENTERED, OR BODY CENTERED STRUCTURE. THE REGIONS ARE DEFINED FOR THE EXISTENCE OF THE CUBIC AND TETRAGONAL BETA PHASE, AND THE DEGREE OF TETRAGONAL DISTORTION WAS DETD. IN RELATION TO THE H CONCN. AND TEMP. THE PURITY OF THE STARTING MATERIALS AND THE TECHNOL. ASPECTS OF THE SAMPLE PREPN. AFFECT THE PHASE LIMITS.

UNCLASSIFIED

USSR

UDC 621.382.002

GAYSINSKIY, V.B., GAL'CHINETSKIY, L.P., GRIGOR'YEV, A.N., KOSHKIN, V.M., KULIK, V.N., NIKOLAYCHUK, L.I., PIVOVAR, L.I., RAYSKIN, E.K., SYSOYEV, L.A., FAYNER, M.SH.

"Ion Implantation Of Single Crystals Of Cadmium Sulfide"

V sb. Monokristally i tekhnika (Single Crystals And Technology--Collection Of Works), Issue 6, Khar'kov, 1972, pp 109-112 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B459)

Translation: The effect was studied of the dose and energy of irradiation by lithium ions in the temperature range from minus 70 to plus 180° C on the conductivity of cadmium sulfide. A divergence is found between the theoretically calculated value of the depth of penetration of lithium ions and the experimental results. These divergences are accounted for by the marked differences of the structures of the surface layer and the volume of the crystal. With the aid of ion implantation piezosemiconductor transducers were produced based on a high-resistance layer in CdS. Summary.

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USSR

UDC 517.925.1

AMEL'KIN, V. V., GAYSHUN, I. V.

"Some Characteristics of Solutions of a Second-Order Equation"

Minsk, Differentsial'nyye Uravneniya, Vol 7, No 12, 1971, pp 2131-2135

Abstract: The second-order equation considered in this article is of the form

$$\varphi(\ddot{\xi}) + a\dot{\xi} + b\xi = 0, \qquad (1)$$

where $\varphi(z)$ is a continuously differentiable function defined for all $z \in (-\infty, +\infty)$, and $|\varphi'(z)| \geq \delta > 0$. By making the substitutions $\dot{\xi}(t) = x(t)$, differentiating the resultant equation with respect to t, and setting $\dot{x} = y$, the system

$$\dot{x} = y, \quad \dot{y} = \frac{-bx - ay}{\varphi'(y)}$$

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AMEL'KIN, V. V. et al, Differentsial'nyye Uravneniya, Vol 7, No 12, 1971, pp 2131-2135

is obtained. On the assumption that $a = 0$ and $b > 0$ and that $\varphi(z)$ is holomorphic near the origin of coordinates, equation (1) is examined under the condition that a small perturbation, periodic in time, affects it. The authors are associated with the V. I. Lenin Belorussian State Institute.

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USSR

UDC 576.858.098.396.332.083.1

YERSHOV, F. I., GAYSKHOKI, V. S., KISELEV, O. I., ZAYTSEVA, O. V., MENSHIKH, L. K., URYVAYEV, L. V., NEYFAKH, S. A., and ZBDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow, Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report II: Replication of Viral RNA in Mitochondria and Characteristics of the Final Product"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

Abstract: It was of interest to establish whether isolated mitochondria could replicate virus RNA, that is whether "bacterial" ribosomes could synthesize the functionally active RNA polymerase, and whether the final product of virus-specific synthesis has infectious properties. H^3-RNA isolated from purified Venezuelan equine encephalitis virus was used to study the function of virus RNA emerging in mitochondria. Contact between mitochondria and RNA was 30 minutes at 0°C. After this, the mitochondria were incubated under aerobic conditions for 2 hours at 37°C. After termination of the incubation period, RNA was separated by the phenol deproteinizing method and analyzed in a sucrose density gradient (5-30%). Peaks were found in the 40S and 26-20S region. The 40S area corresponds to RNA-ase and the 26-20S area to ribonu-

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YERSHOV, F. I., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

clease-resistant material, the replicative form of viral RNA. The data obtained indicate that the predominant portion of viral RNA appearing in mitochondria does not participate in the replication process and its dehydration products show up in the top zone of the gradient. No radioactive products of mitochondrial RNA translation were detected, which can be explained by the effective concentration of actinomycin D. As the newly synthesized RNA forms complexes with proteins, infectious activity increases. The complexes formed have subcellular structures and are separated from infected cells.

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USSR

GAYSKIY, V. A.

"Method of Reversible Reduction in Volume of Representation of Digital Measurement Information"

Avtomatiz. Nauch. Issled. Morey i Okeanov. Ch. 2 [Automation of Scientific Research of the Seas and Oceans. Part 2 -- Collection of Works], Sevastopol', 1972, pp 164-171 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V648).

Translation: A method is suggested for coding sequences of binary numbers, based on encoding the code differences between words from 0 to (n - 2) order or expansion of sequences into code series.

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USSR

UDC 539.171.017

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA.

"Inelastic Coefficient of Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

Abstract: Contrary to the case of proton-nucleon interaction in which the inelastic coefficient (part of the energy used in strong interactions for the formation of new particles) is found relatively easily, it is more difficult to determine in the case of pion-nucleon interaction, mainly because of the difficulty in recognizing a primary pion among the new particles.

With the non-symmetrical pion-nucleon collisions, inelastic coefficients are different in different systems of co-ordinates. Determining the coefficient from one recoil nucleon, or from a "preserved" primary particle, is unreliable -- it does not give the true picture of interaction.

The purpose of the present work is to provide the clarification of this problem in the light of the multiplicity and charge exchange by colliding particles in a pion-proton interaction with an impulse of 10.2 gev/sec.

Distribution of the inelastic coefficient was obtained on the basis of the total energy of the colliding particles; energy of nucleon and primary

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GAYTINOV, A. SH., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

(leading) pion before and after interaction; energy, impulse, and angle of recoil of the nucleon; masses of both nucleon and pion. Particles with 30 percent or more of the energy of the primary pion were considered as "leading". Utilization of such particles for further computations produced reasonable results.

Particular cases examined were: number of generated particles was greater than three; "leading" pion took more than 50% of the energy of a primary particle; comparative distribution of inelastic coefficient with and without charge exchange of the target proton. Final data are presented for events with the observable "leading" pion, which events are further subdivided into three groups: 1) "leading" pion is charged; 2) "leading" pion is neutral; 3) all remaining events.

Fractional energy carried away by a single pion is presented graphically as a function of the number of new particles, from which it follows that this energy is independent of the nature of the colliding particles and decreases slightly with an increase in the number of new pions.

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USSR

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA., Institute of High-Energy Physics, Academy of Sciences Kazakh SSR

"The Nature of Energy-Separated Particles in Inelastic Interactions"

Moscow, Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

Abstract: Previous articles by the authors stated that in pion-nucleon interactions at energies of 7.5, 10, and 17 Gev and proton-nucleon interactions at an energy of 9 Gev particles with $E \geq 0.3 E_0$ (E_0 and E being the primary- and secondary-particle energies) should be considered energy-separated particles (e.s.p.). This definition is supported by experimental facts obtained from an analysis of 4-track $\pi^- p$ interactions in a hydrogen bubble chamber at 10 Gev and 4-track pp interactions in a nuclear photoemulsion at 9 Gev. It is shown that in $\pi^- p$ interactions among the secondary particles there stands out a group of pions ($E \geq 0.3 E_0$) whose energy and angle characteristics differ from those

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GAYTINOV, A. SH., et al., Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

of the remaining particles in these same interactions and at the same time coincide with the characteristics of fast protons ($E \geq 0.3\ E_0$) from pp interactions. The mean energies and transverse momenta of e.s.p. differ for different reaction channels. In most cases energy-separated pions are produced as a result of ρ^0 resonance decay. Pions with different charge signs occur among e.s. pions. The number of π^- mesons is considerably greater than π^+ or π^0 mesons and decrease with an increased number of final-state particles. In the reaction $\pi^- p \to \pi^- p \pi^- \pi^+ \pi^0$, where e.s. pions of all signs are represented, the number of π^+ and π^0 mesons was found to be the same within error limits. In the reactions $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+$ and $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+ (m\pi^0)$, $m \geq 1$, in which proton charge exchange takes place, the number of π^+ mesons is greatest.

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USSR

GAYTINOV, A. SH., Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

The authors thank P. A. USIK, E. G. BOOS, A. KH. VINITSKIY, YU. T. LUKIN, A. A. LOKTIONOV, I. S. STREL'TSOV for their discussion and comments.

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USSR

GAYTINOV, A. Sh., TAKIBAYEV, Zh. S., CHASNIKOV, I. Ya., Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR

"The Part Played by Energy-Released Particles in Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 9, 1970, pp 1885-1887

Abstract: The part played by energy-released particles and their influence upon the characteristics of secondary pions in inelastic π^--p-interactions at an energy of 10.2 gigaelectron-volts is ascertained in this paper. Data on inelastic pp-interactions at the same energy are used for comparison. The number n_{max} of generated particles may be estimated as a function of the energy of the primary particle. As the number of generated particles increases, the average energy of the released particles decreases, and the transverse momentum at that time increases. This can be understood if it is assumed that the energy-released pions are "conserved" primary particles. 1 table, 3 figures, 10 bibliographic entries.

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USSR

UDC 669.24:538.653

KARASYUK, N. P., MIROSHNICHENKO, F. D., and GAYTOTA, G. I., Zaporozh'ye Pedagogical Institute

"Magnetostriction of Heat-Resistant Nickel-Base Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 887-890

Abstract: The magnetostrictions of complex-alloyed heat-resistant alloys (KhN77TYuR, ZhS6K, ZhS3LS, and VZhL8) of different chemical composition, depending on their method of thermal and mechanical treatment, were investigated. These alloys are paramagnetic in the temperature range of room temperature — 700 to 800°C. Their measured magnetostrictions, in dependence on the outer magnetic field intensity H, were found to be negative. The appearance of the negative magnetostriction and its magnitude is explained by the percentage content of the hardening γ'-phase of $Ni_3(Al, Ti)$-type in the first alloy and by the quantity of the same phase, but of more complex chemical composition, in the other 3 alloys. The magnitude of the magnetostriction depends on

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KARASYUK, N. P., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 887-890

the chemical composition of the alloys, the kind of their thermal treatment, and also on their mechanical surface treatment. The presence of magnetostriction in the investigated alloys can be considered related to the γ'-phase, separated during aging, and its magnitude of magnetostriction can be considered related to the percentage content of this phase. Three figures, two tables, two bibliographic references.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--RESPIRATORY ACTIVITY OF ISOLATED NUCLEAR MEMBRANES AND NUCLEI OF RAT LIVER -U-

AUTHOR-(05)-KUZMINA, S.N., MONAKHOV, N.K., GAYTSKHOKI, V.S., NEYFAKH, S.A., ZBARSKIY, I.B.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 215-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATION, RAT, LIVER, DEHYDROGENASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1671 STEP NO--UR/0020/70/191/001/0215/0217

CIRC ACCESSION NO--AT0133576

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AT0133576 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESPIRATORY ACTIVITY OF ISOLATED NUCLEI OF RAT LIVER CELLS WAS TABULATED WITH AND WITHOUT ADDED CYTOCHROME C, NADH, AND ADP AS WELL AS GLUTAMATE, SUCCINATE, AND CN PRIME NEGATIVE. THE RESULTS SHOWED THAT OXIDATIVE SYSTEMS ARE PRESENT IN THE CELLS OF LIVER STRUCTURE AND SPECIFICALLY IN THE NUCLEI OF THESE CELLS SO THAT NUCLEAR OXIDATION PROCEEDS IN VARIOUS CELLS AND IS NOT LIMITED TO LYMPHOIDAL TISSUES ONLY. THE NUCLEAR MEMBRANE AND NUCLEI PER SE ACTIVELY USE NADH AS THE OXIDN. SUBSTRATE; A LESS INTENSIVE STIMULATION OF RESPIRATION BY NADPH AND A CONSIDERABLE INCREASE OF THIS EFFECT BY ADDED NAD WERE NOTED. THIS INDICATES THAT NADPH IS OXIDIZED MAINLY BY A TRANSHYDROGENASE AND SUBSEQUENT DEHYDROGENATION OF NADH. THE ABSENCE OF A PRONOUNCED EFFECT OF ADDED SUCCINATE ON O SUB2 UPTAKE AGREED WITH THE LACK OF SUCCINATE DEHYDROGENASE IN THE NUCLEAR STRUCTURES OF THESE CELLS. ADDED ADP DID NOT STIMULATE RESPIRATION. HENCE EXOGENOUS ADP EVIDENTLY DID NOT PLAY A ROLE AS PHOSPHATE ACCEPTOR IN THESE SYSTEMS. FACILITY: INST. BIOL. RAZV., MOSCOW, USSR.

UNCLASSIFIED

GAYISKHOKI, V. 3.

BIOCHEMISTRY

JPRS 54849

4 January 1972

SYNTHESIS OF INFECTIOUS VIRAL RIBONUCLEOPROTEINS IN ISOLATED MITOCHONDRIA

UDC 576.856

[Article by F. I. Yershov, V. S. Gavrish, [illegible], O. I. Kiselev, I. K. Mel'nikova, N. V. Zaytseva, T. [illegible], and V. M. Zhdanov, Moscow, Molekulyarnaya Biologiya, Vol XXV, No 6, 1971, pages 1 to press 5 May 1971, pp 1452-1457]

We found in an earlier study /1/ that infectious RNA of Venezuelan equine encephalitis (VEE) virus penetrates into isolated rat liver mitochondria where it suppresses the transcription of mitochondrial RNA and itself becomes a matrix for virus-specific synthesis of RNA and protein using the energy generated by the mitochondria. At that time, however, we did not have proof that the mitochondria form a complete replicative complex and final product of synthesis - infectious ribonucleoproteins possessing infectious properties. The purpose of this work was to determine whether mitochondrial RNA polymerase and whether isolated mitochondria can ensure the complete replication of viral genomes on virus-specific matrices included in the "bacterial" type /2/ cell synthesis normal virus-specific mitochondria.

Our objective was to find out whether all types of virus-specific RNA, including virion RNA with a sedimentation constant of 40 S, can be formed in "infected" mitochondria. Our first task was to study the dynamics of the synthesis of total viral RNA. We added to rat liver mitochondria unlabeled viral RNA (50 μg/ml). We added to study the dynamics after 30 minutes of contact at 0° we incubated the material described in labeled RNA precursors at 37° in the presence of an effective concentration of actinomycin D (50 μg/ml). The pulse label was introduced at various times after the start of incubation of the mitochondria at various concentration of actinomycin D almost completely precluded the possibility of DNA-dependent synthesis of mitochondrial RNA /3/ so that the labeled precursors could be incorporated only into newly synthesized viral RNA.

The incorporation of C^{14}-labeled precursors into RNA calculated in counts/min per unit of optical density of RNA at 260 $m\mu$ was, respectively, 1600, 1400, 3800, 1500, and 500.

[1 - USSR - C]

USSR

UDC 576.858

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA, O. V., URYVAYEV, L. V., ZHDANOV, V. M., Member of the Academy of Medical Sciences USSR, and NEYFAKH, S. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Reconstruction of the Autonomous Genetic and Protein-Synthesizing System from Virus RNA and Isolated Mitochondria"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971, pp 220-223

Abstract: In experiments performed on isolated mitochondria of rat liver incubated with H^3-RNA obtained from purified Venezuelan equine encephalomyelitis virus, it was demonstrated that the virus RNA enters the mitochondria and is incorporated into their autonomous system of protein synthesis, for which the mitochondria supply the necessary energy. Transcription of the mitochondrial DNA is inhibited, the virus RNA is replicated, and thus virus proteins are synthesized.

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USSR UDC 576.858.098.396.332.083.1

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA O. V., YRIVAYEV, L. V., ZHDANOV, V. M., and MEYFAKH, S. A., Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad, Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report I: Penetration of Viral RNA Into Mitochondria and Its Effect on Mitochondrial Synthesis"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

Abstract: Isolated rat liver mitochondria were incubated in a medium promoting oxidative phosphorylation and protein and RNA biosynthesis. H^3-RNA of Venezuelan equine encephalitis virus was added. It was found that after incubation, approximately 72% of the introduced radio-activity was in the mitochondria. It was concluded that the emergence of H^3-RNA of the cirus in the mitochondria is not due to adsorption of RNA on the surface of these structures; instead, the cell fluid and actinomycin D stimulated RNA penetration. The distribution of viral RNA in mitochondrial subfractions was studied. Approximately 64% of the labeled RNA was found in the internal membrane and matrix fraction. Inhibition of RNA synthesis of mitochondrial protein was observed. The fraction of actinomycin-resistant protein synthesis

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USSR

GAYTSKHOKI, V. S., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

increases sharply. It was concluded that there maybe a link between the restructuring of mitochondrial ribosomes and the synthesis of mitochondrial proteins and virus-specific syntheses.

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1/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CHARACTERISTICS OF THE RIBOSE CONTAINING COMPONENT OF DNA PREPARATIONS ISOLATED FROM RAT LIVER MITOCHONDRIA -U-

AUTHOR-(05)-GAYTSKHOKI, V.S., GACHAVA, M.M., KAZAKOVA, T.B., MARKOSYAN, K.A., RAKHIMBEKOVA, L.S.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(2), 336-42

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MITOCHONDRION, LIVER, TISSUE PHYSIOLOGY, DNA, CHROMATOGRAPHY, PHYSICAL CHEMISTRY PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0282 STEP NO--UR/0218/70/035/002/0336/0342

CIRC ACCESSION NO--AP0135778

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135778

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DNA PREPNS. FROM RAT LIVER MITOCHONDRIA AND MITOCHONDRIAL MEMBRANES CONTAINED A CONSIDERABLE QUANT. OF RNA RESISTANT TO RNASE. TREATMENT OF DNA WITHRNASE I AND POLYNUCLEOTIDE, PHOSPHORYLASE AND HEAT DENATURATION OF DNA FOLLOWED BY RNASE 1 TREATMENT DID NOT COMPLETELY REMOVE THE BOUND RNA. DURING DNA CHROMATOG. ON METHYLATED ALBUMIN KIESELGUHR COLUMNS PART OF THE RNA IS ELUTED AS A SEP PEAK, AND THE REMAINDER IS ELUTED WITH THE DNA AND SHOWS SENSITIVITY TO RNASE. DNA IS COMPLETELY REMOVED FROM THE RNA BY CENTRIFUGING THE CHROMATOGRAPHED DNA PREPNS. IN A D. GRADIENT OR BY GEL FILTRATION ON SEPHADEX G 200 FOLLOWING TREATMENT WITH RNASE AND PRONASE. THIS RNA, PARTICULARLY THE LOOSELY BOUND FRACTION SEPD. FROM THE DNA DURING CHROMATOG., POSSESSES TEMPLATE ACTIVITY WHICH SIGNIFICANTLY EXCEEDS THAT OF EQUIV. QUANTS. OF THE TOTAL MITOCHONDRIAL RNA.

FACILITY: LAB. BIOCHEM. GENET., INST. EXPTL. MED., LENINGRAD, USSR.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINING THE CONTACT RIGIDITY AND ELASTICITY OF MOUNTING ACCELEROMETERS -U-

AUTHOR-(04)-GAYUN, V.V., GUSEV, O.P., ZEGZHDA, S.A., YUSHKOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. PRIBOROSTROYENIYE, NO 2, 1970, PP 102-106

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, PHYSICS

TOPIC TAGS--ACCELEROMETER, MECHANICAL FASTENER, ELASTICITY, BUTT WELDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1646 STEP NO--UR/0146/70/000/002/0102/0106

CIRC ACCESSION NO--AT0123484

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0123484
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASIC RESULTS ARE PRESENTED FROM AN EXPERIMENTAL INVESTIGATION OF THE CONTACT RIGIDITY OF BUTT JOINTS. ON THE BASIS OF THESE RESULTS, SEMIEMPIRICAL RELATIONSHIPS ARE OBTAINED FOR CALCULATING FLAT BUTT JOINTS AND THREADED JOINTS OF ACCELEROMETERS. THE THEORETICAL AND EXPERIMENTAL DATA ARE COMPARED. FACILITY: LENINGRAD STATE UNIVERSITY.

UNCLASSIFIED

USSR UDC 531.768

LUPINSKIY, M. M., SAVITSKIY, F. S., and GAYUN, V. V.

"Threshold Elastic-Contact Accelerometers"

Moscow, Vibratzion. tekhnika (Vibration Engineering) 1972, pp 98-101 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 1, 1973, Abstract No 1.32.407)

Translation: For determining only the peak value of acceleration, type-UKA accelerometers were developed, whose action is an elastic-contact method of acceleration measurement. The basic design elements of the elastic-contact accelerometer are elastic inertial bodies with spherical faces and flat, elastic bases. Both elements are prepared from high-grade steel with a yield point of $1.5\text{-}1.7\times10^9$ newtons/m^2 and tempered to a hardness of NRS 62-65. The smoothness of the contact surfaces most be lower than 10, and the accuracy of preparation of spheres and planes not less than 2-5 newton rings. The UKA design ensures the measurement of the vectors of acceleration and their three components. UKA is suitable for measuring peak values of acceleration from 10^4 to 10^6m/sec^2 for a process duration of 2×10^{-4} sec and greater. (1 illustration, 5 bibliographic entries)
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USSR

UDC 547.836:542.942.4

PROSTAKOV, N. S., GAYVORONSKAYA, L. A., URBINA, G. A., EMERUVA, P. D., and NAKANISI, T., Friendship Between Peoples University imeni Patris Lumumba, Moscow

"2-ω-Hydroxyalkyl-3-Methylindano[2,1-c]Piperidine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 666-668

Abstract: In order to obtain physiologically active preparations of partially hydrogenated azafluorenes for systematic stereochemical studies, investigations were commenced on sodium reduction of 3-methyl-2-azafluorene (I) in an alcoholic solution. Of the four possible isomers of 3-methylindano[2,1-c] piperidine (II) that could have been expected, only two were actually formed: one isomer was a liquid (IIa) with a b.p. of 115°C, and the other a crystalline substance (IIb) with a m.p. of 81.5-83°C. IR spectra confirmed the structure of II and indicated hydrogen bonding between the molecules involving the -NH group. This mixture of the II isomers was employed for the synthesis of 2-ω-hydroxyalkyl-3-methylindano[2,1-c]piperidines which are of pharmacological interest. Ethylene and butylene chlorohydrins were used for the alkylation of II in the presence of KI and K_2CO_3, and chromatographic analysis of the products revealed the formation of 2-β-hydroxyethyl-3-methyl-indano[2,1-c] piperidine (III) and 2-δ-hydroxybutyl-3-methylindano[2,1-c]piperidine, respectively.
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PROSTAKOV, N. S., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 666-668

Each of the latter two compounds existed in the form of two isomers which apparently corresponded to the two isomers of II. The IR spectra of III showed a wide absorption band at 3420 cm^{-1} which represents the involvement of the -OH group in intermolecular hydrogen bonds, and an intense absorption at 1600 cm^{-1} corresponding to the C-O bond of the primary alcohol. Subsequent communication shall deal with the sterochemistry of the geometric isomers of II.

2/2

AA0039788 Gayvoronskiy, A.G UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

236766 SMELTING OF ORES, CONCENTRATES AND WASTE PRODUCTS from production of non-ferrous metals in shaft furnaces, is modified by feeding hot metal gases previously mixed with hold or hot air or oxygen-enriched air through nozzles or burners situated above the level of the tuyeres. This enables the costs of the process to be reduced and production capacity of the furnace to be increased. 1.2.64. as 881159/22-2. Yu.A.AGAPOV et al. Chimkent Sec. M.I. Kalinin Lead Works, Non-Ferrous Metals Res. Inst. and Metallurgy & Ore Enrichment Inst. Acad. Sciences Kazakh SSR. (10.6.69.) Bul.7/3.2.69. Class 40a. Int.Cl.C22b.

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19741100

AA0039788

AUTHORS: Agapov, Yu. A.; Gayvoronskiy, A. G.; Yevdokimenko, A. I.; Yelyakov, I. I.; Kovgan, P. A.; Malkin, Ya. Z.; Polyvyannyy, I. R.; Ponamarev, V. D.

Chimkentskiy Ordena Lenina Svintsovyy Zavod imeni M. I. Kalinina, Gosudarstvennyy Nauchno-Issledovatel'skiy Institut Tsvetnykh Metallov i Institut Metallurgii i Obogashcheniya AN Kazakhskoy SSR

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19741101

1/3 . 014 UNCLASSIFIED PROCESSING DATE--09SEP70

TITLE--MODIFICATION OF CONVECTIVE CLOUDS -U-

AUTHOR-(03)-GAYVORONSKIY, I.I., ZATSEPINA, L.P., SEREGIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 3, 1970, PP 252-258

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--CUMULUS CLOUD, AEROSOL, WEATHER MODIFICATION, CLOUD SEEDING, THUNDERSTORM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0715 STEP NO--UR/0362/70/006/003/0252/0258

CIRC ACCESSION NO--AP0110449

UNCLASSIFIED

2/3 014 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110449

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES THE RESULTS OF EXPERIMENTS FOR MODIFICATION OF WELL DEVELOPED CUMULUS CLOUDS BY AEROSOLS OF INSOLUBLE SUBSTANCES. THE GREATEST EFFECT WAS OBTAINED WHEN USING HYDROPHILIC PARTICLES. MOST OF THE EXPERIMENTS WERE MADE IN INDIVIDUAL CLOUDS OR IN MASSES OF DEVELOPING AIRMASS AND FRONTAL CONVECTIVE CLOUDS IN THE STAGES CB AND CB CAPIL. THE VERTICAL THICKNESS OF THE CLOUDS SUBJECTED TO MODIFICATION VARIED FROM 5 TO 10 KM. THE TOPS OF THESE CLOUDS ATTAINED 7,000-12,000 M WHERE THE AIR TEMPERATURE WAS -20--58DEGREESC. THE REAGENT USED WAS A COARSE DISPERSE AEROSOL OF PORTLAND CEMENT WHOSE SPECIFIC SURFACE WAS 4,000 CM PRIME2-G. THE EXPERIMENTS CONTINER. EACH UNIT HELD ABOUT 10 KG OF REAGENT. THE CONTROL PANEL WAS ARRANGED SO THAT BETWEEN 10 AND 400 KG OF REAGENT COULD BE DUMPED AT ONE TIME. A POSITIVE RESULT WAS OBTAINED FROM THE SEEDING OF 54 OF 55 THUNDERSTORM CLOUDS WITH GREAT VERTICAL DEVELOPMENT. AFTER SEEDING THE CLOUDS CEASED FURTHER DEVELOPMENT AND THE TOPS GRADUALLY BEGAN TO SETTLE. THEN THE CLOUD ACQUIRED A FIBROUS STRUCTURE AND BEGAN TO BE STRATIFIED INTO SMALL PARTS WHICH EVAPORATED WITHOUT THE FALLING OF SIGNIFICANT PRECIPITATION. THE CLOUD WAS DISSIPATED WITHIN 7 TO 20 MINUTES. THE CRYSTALLINE PART OF THE CLOUD PERSISTED IN THE FORM OF A LAYER AND THE ANVIL REQUIRED SEVERAL HOURS FOR DISAPPEARANCE. DIRECT COMPARISON OF RESULTS OF MODIFYING SUCH CLOUDS WITH INSOLUBLE SUBSTANCES AND CRYSTALLIZING REAGENTS (AGI OR SOLID CO SUB2) SHOWS THAT THE PROCESS OF CLOUD DESTRUCTION OCCURS MORE RAPIDLY WITH THE INTRODUCTION OF AN AEROSOL OF INSOLUBLE REAGENTS.

UNCLASSIFIED

3/3 014 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110449

ABSTRACT/EXTRACT--THE EFFECTIVENESS OF THE LATTER IN THE DESTRUCTION OF THUNDERSTORM CLOUDS IS ALSO CONFIRMED BY RADAR OBSERVATIONS. AFTER SEEDING THERE WAS AN APPRECIALBE DECREASE AND THEN DISAPPEARANCE OF RADIO ECHOES. FACILITY: CENTRAL AEROLOGICAL OBSERVATORY.

UNCLASSIFIED

USSR UDC 538.221

PRIMAK, N. M., GAYVORONSKIY, V. I., Krasnoyarsk Polytechnical Institute

"Effect of the Thin Crystalline Structure of Electrically Deposited Iron Films on the Coercive Force"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971, pp 14-18

Abstract: Experimental data are presented on the study of the effect of the magnitude of blocks of coherent scattering and microstresses arising in the deposition process (internal stresses of type II) on the coercive force H_c of iron films produced electrolytically. Films of iron of thickness 1000 Å deposited on sheet copper at pH = 5 were investigated in the current density range 0.1-4 a/in^2. The 1000 Å iron films were obtained from pure aqueous solutions of iron sulfate containing $FeSO_4 \cdot 7H_2O$ in a concentration of 200 g/l. The electrolyte temperature was 20-22°C. The acidity of the electrolyte was reduced to 0.2 N by a KOH solution. With a further increase in the current density the quality of the depositions as poorer (according to visual observations and the coercive force). An x-ray photographic method and an ionization method were used to study the thin crystalline structure of the deposits.

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USSR

PRIMAK, N. M. et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971, pp 14-18

The photographic x-ray method made it possible to evaluate qualitatively the nature of the change in the structure of the samples. The study showed that the size of the coherent scattering blocks decreases with an increase in current density. At low current densities of 0.1-0.5 a/in^2, the blocks decrease rapidly, and at high current densities they decrease slightly. The coercive force and microstresses initially decrease up to a current density of 0.5 a/in^2 and then rise. The shape of the coercive force vs. the current density curve is attributed to microstresses. The presence of a minimum in the coercive force at a current density of 0.5 a/in^2 is explained by the minimum value of the microstresses and uniformity in the structure of the deposit. A decrease noted in the saturation magnetization is attributed to adsorption of impurities.

2/2

AP9049814

UR 0431

PRIMARY SOURCE: Izvestiya, AN ArmSSR. Fizika, Vol 4, Nr 1, pp 53-57

THE FLUCTUATIONS OF THE TRACK BRIGHTNESS IN THE STREAMER CHAMBER

T. L. ASATIANI, K. A. GAZARIAN, W. N. JMROW, W. A. IVANOV, A. A. NAZARIAN

The analysis of he fluctuations of streamer track brightness is presented. It is shown that these fluctuations are mainly related to the energy losses ionization. Method of identification of fractionaliy charged particles and multy-charged nuclei by counting the number of electrons on the streamer track is proposed.

1948 0125

1/2 046 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--IONIZATION AGING OF A POLYETHYLENE FILM -U-

AUTHOR-(04)-BAGIROV, M.A., MALIN, V.P., GAZARYAN, YU.N., VOLCHENKOV, E.YA.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 44-6

DATE PUBLISHED-------70

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SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--IONIZATION, POLYETHYLENE, DIELECTRIC PERMEABILITY, IR SPECTRUM, SPECTROSCOPIC ANALYSIS, CHEMICAL BONDING, SURFACE PROPERTY, OXIDATION, MATERIAL DEGRADATION, PLASTIC FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1702 STEP NO--UR/0191/70/000/002/0044/0046

CIRC ACCESSION NO--AP0112696

UNCLASSIFIED

2/2 046 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0112696

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYETHYLENE (I) FILMS (55 MU THICK) WERE SUBJECTED TO ELEC. DISCHARGES AT A VOLTAGE OF 7-11 KV (UNDER N OR AIR) AND THE RESULTING CHANGES IN DIELEC. LOSS FACTOR (TAN DELTA), DIELEC. PERMEABILITY (EPLISON), BREAKDOWN STRENGTH (E), AND THICKNESS (H) WERE RECORDED. IONIZATION AGING CAUSED A LINEAR DECREASE IN E AND H (THE RATE OF DECREASE BEING PROPORTIONAL TO THE VOLTAGE APPLIED), AND A DECREASE IN EPLISON. A PLOT OF TAN DELTA VS. TEMP. REVEALED A NEW DOMAIN OF LOSSES AT 20-80DEGREES, PRESUMABLY DUE TO THE PRESENCE OF LOW MOL. WT. COMPDS. IR SPECTRA OF AGED I FILMS (IN AIR) HAD ABSORPTION BANDS CHARACTERISTIC OF OH GROUPS AND C:C DOUBLE BONDS AT 3200-600 AND 1640 CM PRIME NEGATIVE1, RESP. AN EQUATION WAS DERIVED FOR THE CALCN. OF THE NO. OF OXIDIZED UNITS IN I. IONIZATION AGING CAUSED CHEM. CHANGES IN A RELATIVELY THIN SURFACE LAYER OF I FILMS.

UNCLASSIFIED

USSR UDC 621.372.827

BARSUKOV, K.A., GAZAZYAN, E.D., LAZIYEV, E.M.

"On The Theory Of Transition Radiation In A Waveguide"

Izv. VUZ: Radiofizika, Vol XV, No 2, Feb 1972, pp 191-195

Abstract: The transition radiation of a particle crossing a regular waveguide perpendicular to its axis is considered. The waveguide is filled by a dielectric with a constant ϵ . Expressions are derived for the fields and radiation intensity. With $\epsilon = 1$, it is possible that Vavilov-Cerenkov radiation can also originate together with transition radiation. The properties of this radiation are considered for the comparatively simple case of a rectangular waveguide. The conditions are obtained which determine the spectrum of the Vavilov-Cerenkov radiation, and the threshold values of the velocity and the dielectric constant for this radiation are established. 5 ref. Received by editors, 4 June 1971.

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